REVIEW ARTICLE

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Psychological resilience, coping behaviours and social support among health care workers during the COVID-19 pandemic: A systematic review of quantitative studies

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Abstract

Aim: To appraise and synthesize studies examining resilience, coping behaviours and social support among health care workers during the coronavirus pandemic.

Background: A wide range of evidence has shown that health care workers, currently on the frontlines in the fight against COVID-19, are not spared from the psychological and mental health-related consequences of the pandemic. Studies synthesizing the role of coping behaviours, resilience and social support in safeguarding the mental health of health care workers during the pandemic are largely unknown.

Evaluation: This is a systematic review with a narrative synthesis. A total of 31 articles were included in the review.

Key Issues: Health care workers utilized both problem-centred and emotion-centred coping to manage the stress associated with the coronavirus pandemic. Coping behaviours, resilience and social support were associated with positive mental and psychological health outcomes.

Conclusion: Substantial evidence supports the effectiveness of coping behaviours, resilience and social support to preserve psychological and mental health among health care workers during the COVID-19 pandemic.

Implications for Nursing Management: In order to safeguard the mental health of health care workers during the pandemic, hospital and nursing administrators should implement proactive measures to sustain resilience in HCWs, build coping skills and implement creative ways to foster social support in health care workers through theory-based interventions, supportive leadership and fostering a resilient work environment.

KEYWORDS
coping, COVID-19, health care workers, mental health, psychological resilience, social support

1 | INTRODUCTION

The COVID-19 pandemic is an urgent health concern worldwide that greatly affects the mental health, well-being and possibly work effectiveness of health care workers. Mounting evidence indicates that health care workers have suffered a deterioration in their mental and psychological health during the coronavirus pandemic, with reports from individual and review studies showing higher prevalence rates of anxiety, burnout, depression, PTSD and psychological distress among health care workers compared to the general public (Chew et al., 2020; Shechter et al., 2020). In a systematic meta-analysis by Serrano-Ripoll et al., (2020), the pooled prevalence rate of stress among health care workers during the pandemic was 40%; furthermore, 30% of health care workers in the pooled analysis had

anxiety, 28% experienced burnout, 24% had depression, and 13% had post-traumatic stress disorder. Hence, hospital administrators should pay attention to the mental well-being of health care workers as poorer mental health may put them at greater risk for PTSD and even suicide (Reger et al., 2020).

Evidence suggests that during stressful events (including disasters, calamities and disease outbreak), individuals are more likely to suffer adverse mental and psychological consequences when they are not equipped with sufficient levels of resilience and coping abilities (Duncan, 2020; Labrague et al., 2018). Support from peers, colleagues, family and friends has also been shown to help individuals sustain emotional balance in the face of threats and stress-inducing events (Nowicki et al., 2020). Earlier studies conducted during other infectious disease outbreaks such as SARS, Ebola and MERS-CoV identified a protective role for psychological resilience, coping behaviours and social support in health care workers against the psychological and mental health burden of caring for infected patients (Baduge et al., 2018; De Brier et al., 2020). Studies conducted during the COVID-19 pandemic have shown a similar pattern: psychological resilience, coping behaviours and social support safeguard mental health and well-being among health care workers who are on the frontlines of the fights against this deadly virus (Blanco-Donoso et al., 2021; Chew et al., 2020; Labrague & De los Santos, 2020a, 2020b).

Despite the abundance of empirical studies on the topic, no studies have systematically synthesized and integrated the results. A broader perspective on the topic of protective factors for psychological and mental health among health care workers is vital for the formulation of effective organisational strategies to better support the mental health of health care workers on the frontlines of the COVID-19 pandemic. Hence, this systematic review was conducted to synthesize and integrate evidence pertaining to health care workers' psychological resilience, coping behaviours and social support during the coronavirus pandemic.

2 | METHODS

2.1 | Design

This is a systematic review with a narrative synthesis with results reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol.

2.2 | Data sources and search strategies

Relevant studies were identified through electronic database searches using PubMed, CINAHL, SCOPUS, MEDLINE and PsychINFO from August 2020 to October 2020. The following MeSH and search terms ('psychological resilience', 'psychological adaptation' OR 'coping', 'mental health', 'health personnel' OR 'healthcare workers', 'social support', and '2019-nCoV' OR 'COVID-19' OR 'SARS-CoV-2' OR 'severe acute respiratory syndrome coronavirus 2')

were used individually and in combination using Boolean operators (AND, OR and NOT). In addition, cited literature in the articles reviewed were also checked for potentially relevant studies (Figure 1).

2.3 | Inclusion criteria

This review included primary studies assessing psychological resilience, coping and social support among health care professionals during the COVID-19 pandemic. The inclusion criteria were as follows: study participants were health care workers, study was peer-reviewed, published since the onset of the pandemic and published in the English language. In this review, health care workers are defined as people who work in health care settings to provide health care services to patients—including doctors, nurses, midwives, nursing assistants, radiologists, physiotherapists, pharmacists, health care assistants and psychologists. Only studies with quantitative designs were included in this review to facilitate homogeneity of the included papers.

2.4 | Search outcomes

The initial search yielded 478 articles, from which 121 duplicates were removed. After the removal of duplicates, 357 residual references were reviewed for relevance based on the title and abstract. After screening titles and abstracts based on the inclusion criteria, 239 articles were excluded, resulting in 118 articles. After full-text reading of the articles, 87 articles were excluded due to various reasons (e.g. used different study participants, irrelevant to the objective, did not meet the eligibility criteria and poor quality score (<5). Finally, a total of 31 articles were deemed relevant to the review. The data abstraction process is shown in Figure 1.

2.5 | Appraisal of methodological quality

Two independent researchers appraised the quality of the articles using the Joanna Briggs Institute (JBI) Critical Appraisal for Analytical Cross-Sectional Studies in order to avoid selection bias. The JBI appraisal checklist consisted of eight items examining inclusion criteria, subjects and settings, measurement exposure, use of objective and standard criteria for measurement conditions, confounding variables, management of confounding variables, outcomes measurement and data analysis. Studies that fulfilled at least five assessment criteria were included in the review.

2.6 | Data extraction and synthesis

Extraction and appraisal of data were completed by two independent researchers. Using a data matrix template, the following data were extracted from the studies: authors, year of publication, country, research approach, samples, measures, key findings and quality
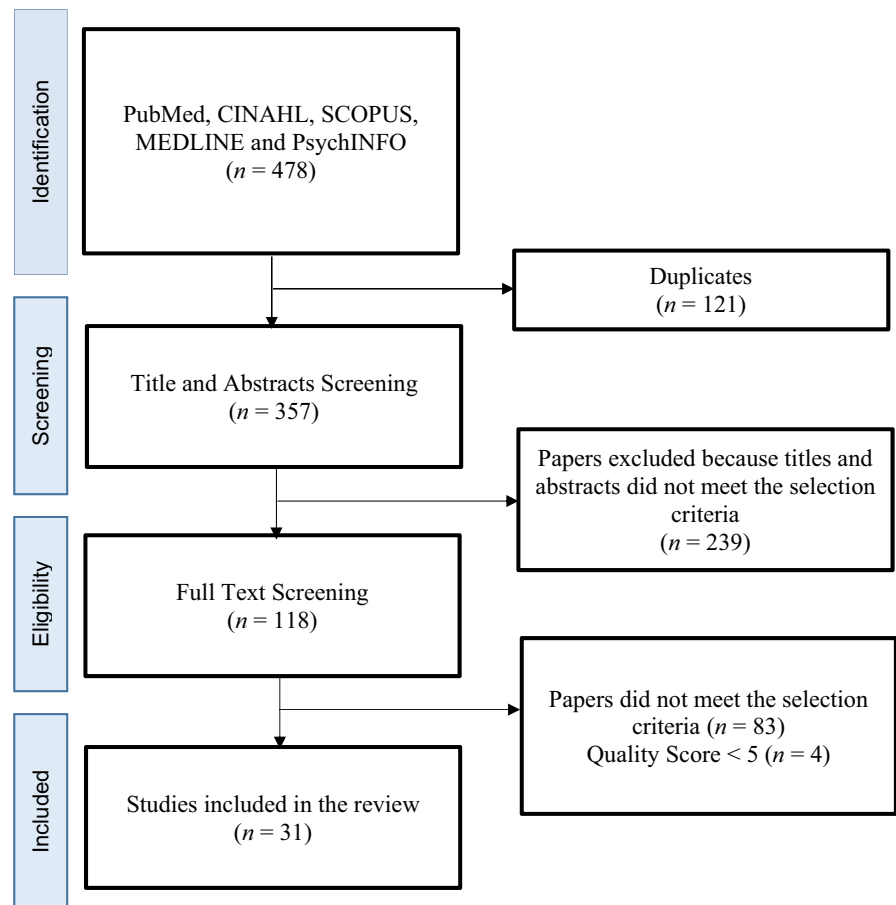
score (Table 1). Due to heterogeneity in the scales used and in the findings of the included studies, statistical pooling was not possible. As such, we used a narrative synthesis to describe the findings. In particular, constant comparison analysis (Miles & Huberman, 1994) was performed to compare findings across studies and to identify patterns and commonalities between studies.

2.7 | Study characteristics

Thirty-one articles were included in the review. A majority of studies were conducted in China (14), with the remaining studies conducted in Italy (5), Philippines (2), the United States (2), Turkey (2), Spain (2), Israel (1), Palestine (1), Pakistan (1) and Egypt (1). Sample sizes ranged from 10 to 4,618 participants. Most of the health care workers included in the studies were nurses, doctors, nursing assistants, midwives, radiologists, physiotherapists, pharmacists, health care assistants or psychologists.

Most studies had a cross-sectional research design (n = 30), mostly using online surveys, and one study had longitudinal research design. Most studies utilized standardized scales to measure psychological resilience, coping skills and social support in health care workers. Six studies utilized research-designed questionnaires/items to identify coping skills in health care workers. Cronbach's alphas ranged from 0.81 to 0.96 in studies that reported internal consistency.

2.8 | Methodological quality score

Using the Joanna Briggs Institute critical appraisal checklist, the majority of the studies were rated as moderate in quality (26/31) and five were rated high. Issues related to identification of potential confounding variables and how these confounders were managed and controlled were common in the included articles.

2.9 | Major findings

Study results were classified into the following categories: (1) levels of resilience and coping, (2) specific coping skills, (3) coping in relation to mental health, (4) resilience in relation to mental health, (5) social support in relation to mental health and (6) strategies to enhance resilience, coping behaviours and social support.

2.10 | Levels of psychological resilience and coping

Six studies reported data on level of psychological resilience (Bozdağ & Ergün, 2020; Huang et al., 2020a, 2020b; Khalaf et al., 2020; Labrague & De los Santos, 2020a; Lin et al., 2020) and three studies described level of coping behaviours in health care workers (Lin et al., 2020; Mi et al., 2020; Nie et al., 2020). High levels of

TABLE 1 Summary of Included Studies

Authors	Country	Research design	Samples	Measures	Key findings	Quality score
Blanco-Donoso et al. (2021)	Spain	Cross-sectional	228 HWCs	SSW	• 13.9% of the variance in secondary traumatic stress measure was explained by lack of staff and supervisor support. • Lower levels of support from co-workers amplify the negative effect of social pressure from work on traumatic stress. • Social pressure from work, high doses of exposure to suffering, lack of personnel and personal protective equipment and minimal supervisor support were significant in explaining traumatic stress.	7/8
Bozdağ and Ergün (2020)	Turkey	Cross-sectional	214 HCWs	BRS; MSPSS	• Mean scale score in the BRS was 18.43 out of 30. • Higher levels of quality of sleep, positive affective state, age and life satisfaction raised the level of psychological resilience. • Higher negative affective state and being a doctor meant lower psychological resilience level.	7/8
Babore et al. (2020)	Italy	Cross-sectional	595 HCWs	COPE	• Lower positive attitude, higher social support, working with COVID-19 patients and higher avoidance strategies predicted higher levels of distress.	6/8
Cai (2020)	China	Cross-sectional	534 medical staff	RD-CBQ	• Coping strategies utilized by HCWs used strict protective measures, knowledge of virus prevention and transmission, social isolation measures and positive self-attitude. • The following provided psychological benefit in HCWs: the availability of strict infection control guidelines, specialized equipment, recognition of their efforts by hospital management and the government.	7/8
Chew et al. (2020)	China	Cross-sectional	274 resident physicians	COPE	• Stress was positively predicted by the use of avoidance as a coping strategy. • Stress was negatively predicted by the use of positive thinking. • Traumatic stress was positively predicted by use of avoidance as a coping strategy. • The use of problem-solving and use of social support as coping strategies were negative and positive predictors of traumatic stress.	7/8
Chen et al., (2020)	China	Cross-sectional	92 nurses	SIQ	• HCWs utilized the following adaptation approaches: communication with family, learning about the disease, communication with colleagues and teamwork. • Least influential coping were as follows: lack of support and understanding from family and relatives; lack of protective supplies; lack of social support and recognition for medical workers and unfamiliar with special work environments, working routine and use of equipment.	78

(Continues)

TABLE 1 (Continued)

Authors	Country	Research design	Samples	Measures	Key findings	Quality score
Dong et al. (2020)	China	Cross-sectional	4,618 (doctors, nurses, technician, health administrators)	RD-CBQ	• Medical staff without emotional problems were significantly more likely to cope by 'adhering to infection control procedures', 'just accepting the risks', 'keeping a positive mind-set', 'keeping a healthy lifestyle', 'avoiding thinking about the risks', 'avoiding traveling', and less 'taking vitamins, herbs, or other complementary substances'. • Family relationships had a direct negative effect on emotional distress levels.	7/8
Di Monte et al. (2020)	Italy	Cross-sectional	102 general practitioners	CISS; RS	• Emotional exhaustion was positively correlated with emotion-oriented coping and negatively with task-oriented coping. • Depersonalization correlated positively with emotion-oriented coping and avoidance-oriented coping and negatively with task-oriented coping. • Personal Accomplishment Scale was correlated negatively with emotion-oriented coping and positively with task-oriented coping. • Resilience had a significant positive correlation with the personal accomplishment subscale and a negative correlation with emotional exhaustion and depersonalization subscales.	7/8
Giusti et al. (2020)	Italy	Cross-sectional	330 (doctors, nurse, nurse assistant physiotherapy)	RD-CBQ	• Age, occupation, being home, work hours, psychological comorbidities, contact with COVID-19 patients, fear of infection, support from family and support from friends predicted burnout due to COVID-19.	6/8
Hou et al. (2020)	China	Cross-sectional	528 HCWs	CSCQ	• PTSD symptoms were positively associated with negative coping and fatigue. • Negative coping moderated the relationship between self-efficacy and PTSD symptoms. • Negative coping also moderated the direct effect of self-efficacy on fatigue.	6/8
Huffman et al. (2021)	USA	Cross-sectional	720 HCWs	CD-RISC	• Resilient HCWs reported less fatigue, insomnia, stress and anxiety than non-resilient HCWs.	8/8
Huang et al., (2020a)	China	Cross-sectional	377 HCWs	CD-RISC	• Psychological resilience was protective for the development of anxiety • 83.8% of HCWs had higher psychological resilience • 16.2% of HCWs had low psychological resilience	6/8
Huang et al., (2020b)	China	Cross-sectional	600 medical staff	CD-RISC	• Mean scale score of the CD-RISC was 65.76 out of 100. • Stress score, female, less knowledge of COVID-19, less knowledge of COVID-19 protective measures and lack of protective materials in the hospital were important related factors for resilience of the medical staff.	7/8
Khalaf et al., (2020)	Egypt	Cross-sectional	170 physicians	BRCS	• The BRCS score was 13.45. • 50% of physicians were low resilient copers, 30% were medium resilient copers and approximately 20% were high resilient copers. • Gender, marital status, academic degree, specialty, years of experience, living with vulnerable family members and chronic diseases did not predict BRCS score. • Psychological resilience had significant and negative correlation with depression, anxiety and stress.	7/8

(Continues)

TABLE 1 (Continued)

Authors	Country	Research design	Samples	Measures	Key findings	Quality score
Labrague and De los Santos (2020a)	Philippines	Cross-sectional	325 nurses	BRCS; PSSQ	• Resilience, social support and organisational support in frontline nurses were moderate. • Social support, personal resilience and organisational support predicted COVID-19 anxiety.	6/8
Labrague and De los Santos (2020b)	Philippines	Cross-sectional	736 nurses	BRCS; PSSQ	• Hospital nurses had higher scores on social support, personal resilience and perceived general health measures than public health nurses. • Personal resilience predicted dysfunctional anxiety related to coronavirus.	6/8
Lin et al. (2020)	China	Cross-sectional	114 (nurses, doctors, medical staff)	CD-RISC; SCSQ	• HCWs had a high level of resilience (67.04). • Active coping (26.61) score was higher than the score of passive coping (10.32). • Nurses obtained a lower resilience score compared to other professions. • Moreover, active coping, depression, anxiety and mental health training were significant predictors of resilience.	7/8
Luceño-Moreno et al. (2020)	Spain	Cross-sectional	1,422 HCWs	BRS	• Resilience is associated in a negative and significant way with post-traumatic stress, anxiety, depression. • The mean scale score of the BRS was 3.02 out of a possible score of 6.	7/8
Li et al., (2020)	China	Longitudinal	356 nurses	CD-RISC	• Nurses with PTSD had a significantly lower resilience than those without PTSD. • An increase of CD-RISC score was associated with a decrease in PTSD. • An increase of CD-RISC score was associated with decreased PTSD symptoms.	6/8
Mosheva et al. (2020)	Israel	Cross-sectional	1,106 (physicians)	CD-RISC	• Psychological resilience was negatively associated with anxiety in HCWs.	6/8
Maraqa et al., (2020)	Palestine	Cross-sectional	430 (physicians, nurses and other allied health professionals; lab and radiology technicians)	RD-CBQ	• The following coping approaches were identified by HCWs: prayers, sports and exercise as the most common (80.5%); having clear guidelines for infection prevention (64.7%); availability of PPE (57.3%); and the support of colleagues.	8/8
Maiorano et al. (2020)	Italy	Cross-sectional	140 (physicians, nurses)	DRS; CSES	• Coping strategies, especially stop unpleasant emotions and thoughts, and hardiness are protective factors and reduce the effect of stress on secondary trauma.	8/8
Mi et al. (2020)	China	Cross-sectional	1,029 HCWs	RD-CBQ	• The mean score of coping measure was 18.48 (range 6–30). • The most common coping strategies were physical exercise, positive attitude and expression feeling/emotion. • Coping was negatively related to depression and anxiety.	7/8

(Continues)

TABLE 1 (Continued)

Authors	Country	Research design	Samples	Measures	Key findings	Quality score
Nie et al. (2020)	China	Cross-sectional	263 nurses	SCSQ; PSSS	• The mean score of positive coping style and negative coping style among all frontline nurses was 1.68 and 0.97, respectively. • Positive coping style and negative coping style were the risk factors of COVID-19 related stress symptoms. • Seven factors associated with the presence of psychological distress: working in ED, concern for family, being treated differently, the impact of the event, negative coping style, perceived social support, precautionary measures effective.	6/8
Salman et al., (2020)	Pakistan	Cross-sectional	398 (doctors, nurse, pharmacists)	Brief-COPE	• Most frequently adopted coping strategy was religious coping followed by acceptance and coping planning. • Females were observed to have significantly higher scores for behavioural disengagement, venting and religious/spiritual coping than male respondents. • Respondents belonging to 26–30 years' age group reported significantly less substance use than those from 31–35 years of age. • Nurses had significantly higher coping style scores on denial, substance use and behavioural disengagement than doctors.	7/8
Shechter et al. (2020)	USA	Cross-sectional	657 HCWs	RD-CBQ	• Physical activity/exercise was the most commonly endorsed behaviour (59%), followed by engaging with faith-based religion and/or spirituality (23%), yoga (25%) and/or meditation (23%), engaging with talk therapy (26%) and virtual provider support groups (16%). • HCWs who screened positive for acute stress reported engaging in more coping behaviours than those who screened negative.	8/8
Tam et al., (2020)	China	Cross-sectional	1,280 HCWs	CD-RISD	• Psychological distress and COVID-19 stressors were negatively correlated with resilience. • Resilience partially mediated the association between institutional support and psychological distress.	6/8
Vagni et al., (2020)	Italy	Cross-sectional	121 (doctors, nurses, psychologists, health care assistants)	CSES-SF	• HCWs utilized focused problem solving and support as coping strategies. • Blocking unpleasant emotions and thoughts strategy had a significant impact on the stress levels and the components of secondary trauma, unlike the problem-focused and social support strategies.	6/8
Xiao et al. (2020)	China	Cross-sectional	180 medical staff	SSRS	• Social support correlated significantly with anxiety and sleep. • Social support negatively affected anxiety and stress levels and positively affected their self-efficacy.	7/8
Yörük and Güler (2020)	Turkey	Cross-sectional	377 midwives and nurses	RSA	• High psychological resilience was found to be protective against depression risk.	6/8
Zhu et al. (2020)	China	Cross-sectional	79 doctors and 86 nurses	SSRS	• The total score of positive coping was negatively correlated with the total score of anxiety and depression.	8/8

Abbreviations: BRCS, Brief Resilient Coping Scale; BRS, Brief Resilience Scale; CD-RISC, Connor-Davidson Resilience Scale; CISS, Coping Inventory for Stressful Situations; COPE, Coping Orientation to Problems Experienced; CSCQ, Simplified Coping Style Questionnaire; CSES, Coping Self-Efficacy Scale; CSES-SF, Coping Self-Efficacy Scale—Short Form; DRS, Dispositional Resilience Scale; MSPSS, Multidimensional Scale of Perceived Social Support; PSSQ, Perceived Social Support Questionnaire; PSSQ, Perceived Social Support Scale; RD-CBQ, Researcher-designed Coping Behaviours Questionnaire; RS, Resilience Scale; RSA, Resilience Scale for Adults; SIQ, Stressor and Incidence Questionnaire; SSRS, Social Support Rate Scale; SSW, Social Support at Work.

psychological resilience were reported in three studies (Bozdağ & Ergün, 2020; Huang et al., 2020a; Lin et al., 2020) and moderate levels of psychological resilience were reported in four studies (Huang et al., 2020b; Khalaf et al., 2020; Labrague & De los Santos, 2020a; Luceño-Moreno et al., 2020). In one cross-sectional study of health care workers assigned to radiology units in China, online survey data indicated that 83.8% of participants reported higher psychological resilience (Huang et al., 2020a). Similarly, a study by Lin et al. (2020) reported high levels of resilience in Chinese health care workers; however, among them, nurses were found to have lower resilience when compared to doctors and other medical staff. In a study from Turkey, health care workers scored 18.43 points out of a possible 30 points on the brief resilience scale (BRS), indicating a greater capability to rebound from the adversity associated with the coronavirus pandemic. On the other hand, four cross-sectional studies reported moderate levels of psychological resilience among physicians (Khalaf et al., 2020), medical staff (Huang et al., 2020b) and hospital nurses (Labrague & De los Santos, 2020a) who were on the frontlines during the pandemic. In another study, health care workers in Spain obtained a mean score of 3.02 on the Brief Resilience Scale (BRS), indicating a moderate capacity to bounce back to a healthy state in the face of adversity (Luceño-Moreno et al., 2020).

With regard to coping mechanisms, three studies measured ways of coping among health care workers using the Simplified Coping Style Questionnaire (Lin et al., 2020; Nie et al., 2020) and a researcher-designed coping behaviour scale (Mi et al., 2020). The three studies reported higher scores for positive versus. negative coping mechanisms, suggesting that when confronted with stress-inducing events such as the COVID-19 pandemic, health care workers are able to utilize positive coping mechanisms.

2.11 | Specific coping skills

Fourteen studies identified specific coping mechanisms employed by health care workers during the pandemic (Blanco-Donoso et al., 2021; Cai, 2020; Chen et al., 2020; Chew et al., 2020; Dong et al., 2020; Giusti et al., 2020; Labrague & De los Santos, 2020a, 2020b; Maraqa et al., 2020; Mi et al., 2020; Nie et al., 2020; Salman et al., 2020; Shechter et al., 2020; Vagni et al., 2020; Xiao et al., 2020). Among these fourteen studies reporting specific coping styles among health care workers during the pandemic, eleven quantitative studies (Blanco-Donoso et al., 2021; Chen et al., 2020; Cai, 2020; Chew et al., 2020; Dong et al., 2020; Giusti et al., 2020; Labrague & De los Santos, 2020a, 2020b; Maraqa et al., 2020; Nie et al., 2020; Vagni et al., 2020; Xiao et al., 2020) indicated that health care workers use support from and communication with family, friends and colleagues as their primary coping mechanisms to manage the adverse mental health consequences of the COVID-19 pandemic. Religious coping mechanisms such as praying were reported as an important coping mechanism in three cross-sectional studies. For instance, in two separate studies involving health care workers in Pakistan (Salman et al., 2020) and Palestine (Maraqa et al., 2020),

praying and other religious activities were the highest-ranked coping mechanisms. In the United States, where prevalence of COVID-19 is highest, frontline emergency health care workers identified religious coping mechanisms such as praying as one of the most important ways to combat the mental and psychological burden of the pandemic (Shechter et al., 2020).

Involvement in distraction activities (such as engaging in sports, exercise, music, yoga or meditation) was also identified as an important coping mechanisms utilized by health care workers during the height of the pandemic (Chen et al., 2020; Dong et al., 2020; Maraqa et al., 2020; Mi et al., 2020; Shechter et al., 2020). Other coping mechanisms identified by health care workers included learning about COVID-19 and its prevention (Cai, 2020; Chen et al., 2020) and adherence to infection control guidelines (Cai, 2020; Dong et al., 2020; Maraqa et al., 2020).

2.12 | Coping in relation to mental health

Nine studies described the interaction between coping skills and mental health in health care workers during the COVID-19 pandemic (Babore et al., 2020; Chew et al., 2020; Di Monte et al., 2020; Hou et al., 2020; Maiorano et al., 2020; Mi et al., 2020; Nie et al., 2020; Vagni et al., 2020; Zhu et al., 2020). The use of positive coping mechanisms such as seeking social support, positive thinking and problem solving was associated with lower levels of traumatic stress, stigma (Chew et al., 2020), psychological distress (Babore et al., 2020), stress symptoms (Nie et al., 2020), anxiety and depression (Mi et al., 2020; Zhu et al., 2020). On the other hand, utilization of negative coping skills, such as avoidance, was strongly linked with increased levels of emotional stress (Chew et al., 2020), PTSD symptoms (Hou et al., 2020), psychological distress (Babore et al., 2020; Nie et al., 2020) and fatigue (Hou et al., 2020). In one study, the use of emotion-centred and avoidant coping styles was associated with increased levels of emotional exhaustion, while problem-centred coping styles were strongly associated with decreased scores on the depersonalization subscale and increased scores on the personal accomplishment subscale of the MBI (Di Monte et al., 2020). Interestingly, unlike previous studies, two separate studies in Italy found that the use of a negative coping style—specifically, the blocking of unpleasant emotions and thoughts—was found to effectively reduce psychological distress (Vagni et al., 2020) and PTSD (Maiorano et al., 2020). Maiorano et al. (2020) and Vagni et al., (2020) both argued that by blocking negative emotions, health care workers are able to continue their work and experience lower perceived levels of stress.

2.13 | Resilience in relation to mental health

A number of papers examined the effects of psychological resilience on the mental health of health care workers (12/31) (Di Monte et al., 2020; Huang et al., 2020a; Khalaf et al., 2020; Labrague & De los Santos, 2020a, 2020b; Li et al., 2020; Lin

et al., 2020; Lucero-Moreno et al., 2020; Maiorano et al., 2020; Mosheva et al., 2020; Tam et al., 2020; Yörük & Güler, 2020). Of these, eight studies reported a protective role of psychological resilience against coronavirus-related anxiety. Increased psychological resilience in health care workers was associated with lower incidence of pandemic-related anxiety among nurses working in hospitals (Labrague & De los Santos, 2020a) and public health centres (Labrague & De los Santos, 2020b). Results obtained from Israel and Egypt showed a similar pattern in which lower levels of coronavirus-related anxiety were associated with higher levels of resilience (Khalaf et al., 2020; Mosheva et al., 2020). In two separate studies from China, health care workers with higher scores on psychological resilience measures reported significantly lower levels of anxiety than those who obtained lower scores on psychological resilience measures (Huang et al., 2020a; Lin et al., 2020). In a study involving 720 health care workers in the United States, resilient participants were more likely than non-resilient participants to report reduced levels of anxiety, stress, fatigue and insomnia (Huffman et al., 2021).

Four studies reported a strong link between personal resilience and depression (Khalaf et al., 2020; Lin et al., 2020; Luceño-Moreno et al., 2020; Yörük & Güler, 2020), suggesting that interventions to enhance resilience among health care workers may help prevent or reduce the occurrence of depression in this population during the COVID-19 pandemic. In addition to depression and anxiety, a few more studies confirmed the protective role of psychological resilience against psychological stress (Khalaf et al., 2020; Luceño-Moreno et al., 2020; Tam et al., 2020;), emotional exhaustion (Di Monte et al., 2020) and PTSD symptoms (Li et al., 2020; Lucero-Moreno et al., 2020; Maiorano et al., 2020;). In one study, resilience partially mediated the association between institutional support and coronavirus-related distress (Tam et al., 2020).

2.14 | Social support in relation to mental health

Seven studies explored the causal relationship between social support and mental health outcomes in health care workers during the pandemic (Blanco-Donoso et al., 2021; Chew et al., 2020; Dong et al., 2020; Giusti et al., 2020; Labrague & De los Santos, 2020a, 2020b; Nie et al., 2020; Xiao et al., 2020). Mental health outcomes examined in relation to social support included traumatic stress, emotional distress, psychological distress, burnout, anxiety and stress. Adequate managerial and supervisorial support and support extended by colleagues, peers, friends and family were associated with reduced levels of traumatic stress (Blanco-Donoso et al., 2021; Chew et al., 2020) and emotional distress (Dong et al., 2020).

In an online cross-sectional study involving nurses in China, higher perceptions of social support explained significant variance in the psychological distress measure (Nie et al., 2020), while in Italy, health care workers who perceived greater support from family and friends reported a significant reduction in burnout symptoms (Giusti et al., 2020). A study involving Filipino nurses showed a similar

pattern: frontline nurses who perceived higher social support were less likely to demonstrate dysfunctional anxiety related to the coronavirus (Labrague & De los Santos, 2020a, 2020b). In addition, adequate social support for health care workers was associated with a significant reduction in stress and an improvement in self-efficacy during the pandemic (Xiao et al., 2020).

2.15 | Strategies to enhance resilience, coping behaviours and social support

Several recommendations to enhance resilience, coping behaviours and social support in HCWs were offered in the literature. Many authors suggested the development and implementation of interventions geared towards enhancing resilience in HCWs through evidence-based education and training to strengthen HCWs' defences against various mental and psychological consequences of the pandemic (Babore et al., 2020; Blanco-Donoso et al., 2021; Dong et al., 2020; Labrague & De los Santos, 2020b; Shanafelt et al., 2020). A few authors suggested individual and group skill training programmes to foster resilience and coping skills in HCWs including online cognitive behaviour therapy or mindfulness-based therapy (Dong et al., 2020; Giusti et al., 2020; Shanafelt et al., 2020). Huffman et al. (2021) suggested the implementation of mindfulness-based stress reduction and cognitive framing to improve coping abilities in HCWs, while Maiorano et al. (2020) identified hardiness training to effectively enhance the ability of HCWs to withstand the burden of the pandemic and cope effectively with the stress associated with it. In addition, reinforcement of positive coping strategies through coping skills trainings was seen beneficial for strengthening the psychological well-being of health care providers during the pandemic (Di Monte et al., 2020; Khalaf et al., 2020; Mi et al., 2020).

Effective leadership was seen as vital in the promotion of mental health in HCWs and in the promotion of a resilient work environment (Chen et al., 2020; Shechter et al., 2020). By being attentive to the psychological, mental and psychosocial needs of the HCWs hospital administrators can effectively offer support and foster resilience and coping (Blanco-Donoso et al., 2021; Chew et al., 2020; Dong et al., 2020). Effective leadership and organisational support through the implementation of a safe and resilient work environment, provision of complete and quality PPE and supplies to prevent infection, provision of updated and evidence-based guidelines for infection prevention, provision of accurate and timely information regarding the disease and implementation of trainings relevant to COVID-19 were seen vital to support the needs of HCWs and improve their mental well-being (Labrague & De los Santos, 2020a; Maraqa et al., 2020).

3 | DISCUSSION

This systematic review is the first to examine psychological resilience, social support and coping behaviours among health care

workers during the COVID-19 pandemic and their effects on mental and psychological health. Despite the threat caused by the new virus and the pandemic's mental health consequences, HCWs reported having moderate to high levels of psychological resilience. In explaining this occurrence, it is important to note that the studies included in the review were conducted during the first wave of the pandemic. Therefore, HCWs are still equipped with substantial personal resources (e.g. coping, self-efficacy, resilience) to combat the psychological burden caused by the coronavirus pandemic (Chen & Bonanno, 2020). However, with the increasing cases of infected patients, increasing patients' death, increased workload due to increasing COVID-19 admissions and lack of personal protective equipment, HCWs' resilience, or ability to bounce back from stressful events, may eventually decline or deteriorate in the long run (Ferreira et al., 2020). Additionally, the lack of social connectedness and the seemingly no definite end in sight for social restrictions may contribute to this decline. As the virus continues to spread along with the threat of the new COVID-19 variants, it is imperative that proactive measures to sustain resilience in HCWs are continuously instituted. These measures may include limiting shift hours, providing adequate hospital supplies, providing rest areas in the hospitals and providing timely updates and accurate information to HCWs regarding the virus.

Coping strategies—that is, mechanisms that an individual can employ to manage the impacts of potential threats—have been long considered an important personal resource to effectively reduce the impact of stress and its accompanying adverse consequences (Lazarus & Folkman, 1987). It was evident in this review that health care workers utilized both positive (e.g. use of social support and praying) and negative (e.g. use of distraction activities) coping strategies to effectively manage the stress associated with the COVID-19 pandemic. Interestingly, the use of religious coping mechanisms—such as reading the Bible for Christians or reciting the Quran for Muslims—has been identified as an effective strategy to reduce stress, anxiety and their adverse effects during the height of the pandemic. As a coping strategy, prayer provides context, social connection and inner strength, making an individual capable of managing stress more effectively. This type of coping is not only practical, but also safe during the pandemic as it does not require contact with someone. A substantial amount of studies have established a positive link between religious coping mechanisms and reduced anxiety, aggression, psychological distress and depressive symptoms as well as enhanced optimism, hope, quality of life and psychological health (O'Brien et al., 2019; Solaimanizadeh et al., 2020).

Seeking social support as a means of coping with adversity has been categorized as a problem-focused coping strategy (Samios et al., 2020) and has been found to effectively reduce stress. Mounting evidence has strongly linked adequate support from managers, co-workers, family and friends with positive mental health outcomes for both health care and non-health care professionals during stressful and traumatic events such as calamities, accidents, disasters and disease outbreaks (Baduge et al., 2018; Labrague et al., 2018). During the pandemic, when stress and anxiety are elevated, adequate social support may help health care workers maintain healthy emotional states. However, the different restrictions to combat the virus, including social distancing, lockdown and quarantine measures, may prevent HCWs from engaging in activities previously learned to effectively cope with stress. For instance, studies conducted before the pandemic identified social support (from friends, peers, family and even the community) and involvement of outdoor distraction activities (e.g. outdoor exercise) as important coping skills to combat stress among nurses (Ha & Sung, 2018; Lim et al., 2010). However, with the ongoing pandemic, utilizing these coping strategies can be more challenging. Because promoting social connectedness is of vital importance (as social isolation is what makes this crisis unique compared to other crises), it is essential to find creative ways to foster relationships (e.g. online social connection), to ensure that HCWs are socially and emotionally connected with their families and friends, without the risk of being infected or of infecting them. Other alternative ways to effectively cope with the mental health burden of the pandemic included formulating a new routine that incorporates healthy and optimistic behaviours, such as exercising, journaling and writing in a gratitude journal (Huang et al., 2020b).

Psychological resilience, like social support, has long been considered a protective factor against the adverse psychological effects of stressful or traumatic situations (Hart et al., 2014). In the context of pandemic, a wide range of evidence has demonstrated that resilient health care workers are more likely to rebound effectively and endure the pandemic-associated psychological burden than non-resilient health care workers (Foster et al., 2020). The role of psychological resilience in protecting individuals against the mental health consequences of an emergency or disaster situation has also been confirmed in previous studies (Duncan, 2020; Labrague et al., 2018). Our finding also adds support to earlier research conducted prior to the pandemic in which higher resilience in health care workers was strongly linked to reduced burnout, compassion fatigue, anxiety, depression and psychological distress (Mealer et al., 2017).

3.1 | Limitations of the study

Although this study provided current understanding of resilience, coping behaviours and social support among HCWs, a few limitations of the review were identified. Potentially relevant research published in other languages were excluded as this review included only articles published in English language. Further, it is worth noting that this review included articles published during the first wave of the pandemic; therefore, ongoing investigations are needed to explore how resilience, coping behaviours and social support among HCWs change through the different waves of the pandemic.

4 | IMPLICATIONS FOR NURSING MANAGEMENT

This review suggests that building resilience and increasing coping skills and social support among health care workers may protect them against the adverse mental and psychological health consequences of the coronavirus pandemic. As such, hospital administrators should foster psychological resilience and reinforce positive coping strategies among health care workers by implementing theory-tested interventions or programmes. Due to restrictions including social distancing and lockdown measures, these interventions could be delivered in innovative ways, such as webinars, online workshops and on-demand videos. Interprofessional, web-based nightly debriefing programmes (Azizoddin et al., 2020) and online cognitive behavioural therapy (Weiner et al., 2020) have been demonstrated to enhance resilience and morale in health care workers and improve clinical processes for quality patient care. Furthermore, increasing social support may provide a sense of greater emotional security among health care workers, thereby reducing their apprehensions and anxiety so they can function effectively during the pandemic. If health care workers are encouraged to express their feelings and concerns and openly discuss their experiences and challenges in the care and management of COVID-19 patients, their morale will improve and their mental health will be sustained.

As positive coping strategies were seen to improve mental health in health care workers, providing training in the development of self-efficacy and effective coping skills may help health care workers better manage the increased work pressures that have accompanied the COVID-19 pandemic. Hospital administrators should consider increasing health care workers' access to mental health professionals during the pandemic in to support their mental health needs.

5 | CONCLUSIONS

The review findings suggest that health care workers manage their stress during the height of the COVID-19 pandemic by utilizing both problem-focused (e.g. use of social support and religious practice) and emotion-focused (e.g. use of diversionary activities) coping strategies. Furthermore, this review found substantial evidence on the value and effectiveness of coping mechanisms, psychological resilience and social support in preserving the mental health and psychological well-being of health care workers during disease outbreaks such as the coronavirus pandemic. Considering the global extent of the pandemic, this review is of interest to international readers—particularly hospital administrators.

CONFLICT OF INTEREST
The author declares no conflict of interest.

AUTHOR CONTRIBUTIONS
The author is qualified for authorship according to the following criteria:

1. Have made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data;
2. Been involved in drafting the manuscript or revising it critically for important intellectual content;
3. Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; and
4. Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ETHICAL APPROVAL
This review study does not require ethical approval since human samples were not included.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

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